

# RISK REDUCTION EFFORTS FOR NORTH DAKOTA FLOODING

EMERGENCY MANAGER  
U.S. ARMY CORPS OF ENGINEERS  
ST. PAUL DISTRICT  
17 JUNE 2015

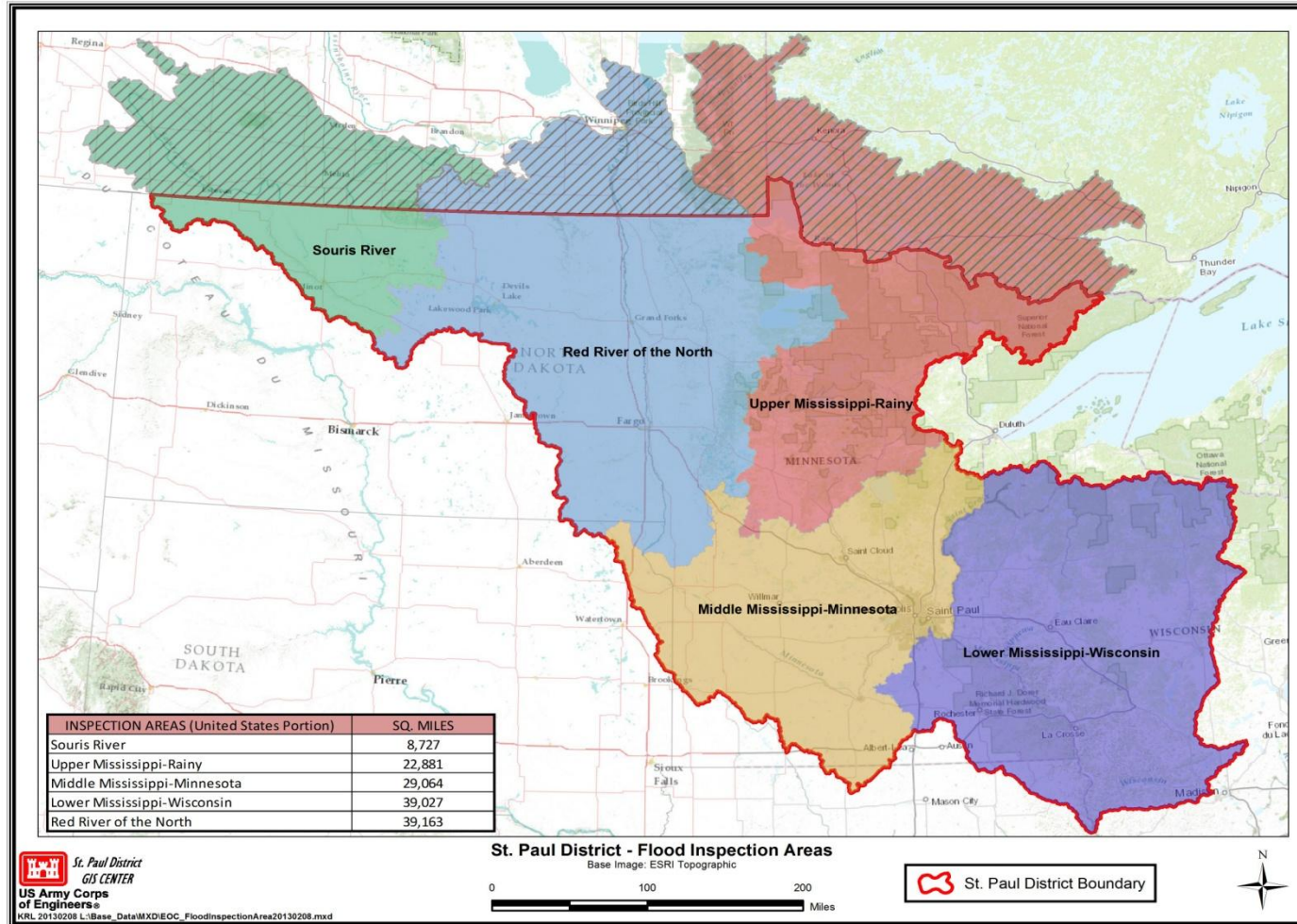


US Army Corps of Engineers  
**BUILDING STRONG®**





# ST. PAUL DISTRICT BASIN BOUNDARIES







# North Dakota Flooding Challenges

- **Mainly snow melt events**
- **Flat Terrain**
- **Soil stability**
- **Souris and Red River of North Flow North**
- **International coordination efforts**
- **Devils Lake**





# MVP Emergency Response

Year	Communities Supported	Cost
1997	47	\$14.80 M
2009	33	\$36.25 M
2011	16	\$16.25 M
2013	8	\$1.65 M



# Red River Basin





# RRN Flooding History

- Red River Flood Stage = 18 feet on the Fargo gage
  - Exceeded in 50 of the past 111 years
  - Exceeded 20 of the last 21 years
- Catastrophic damages have been prevented by emergency measures
  - 8 of the 16 “major” floods on record have occurred since 2000
- 2009 was the flood of record
  - Stage of 40.8 feet
  - 2-percent chance (50 year) event
  - Emergency measures cost approximately \$70M
  - Cost of losing would have been astronomical







## FARGO

**52 MILES OF PROTECTION**

29 MILES OF LEVEE  
(Fargo)

5 MILES OF LEVEE  
(Cass)

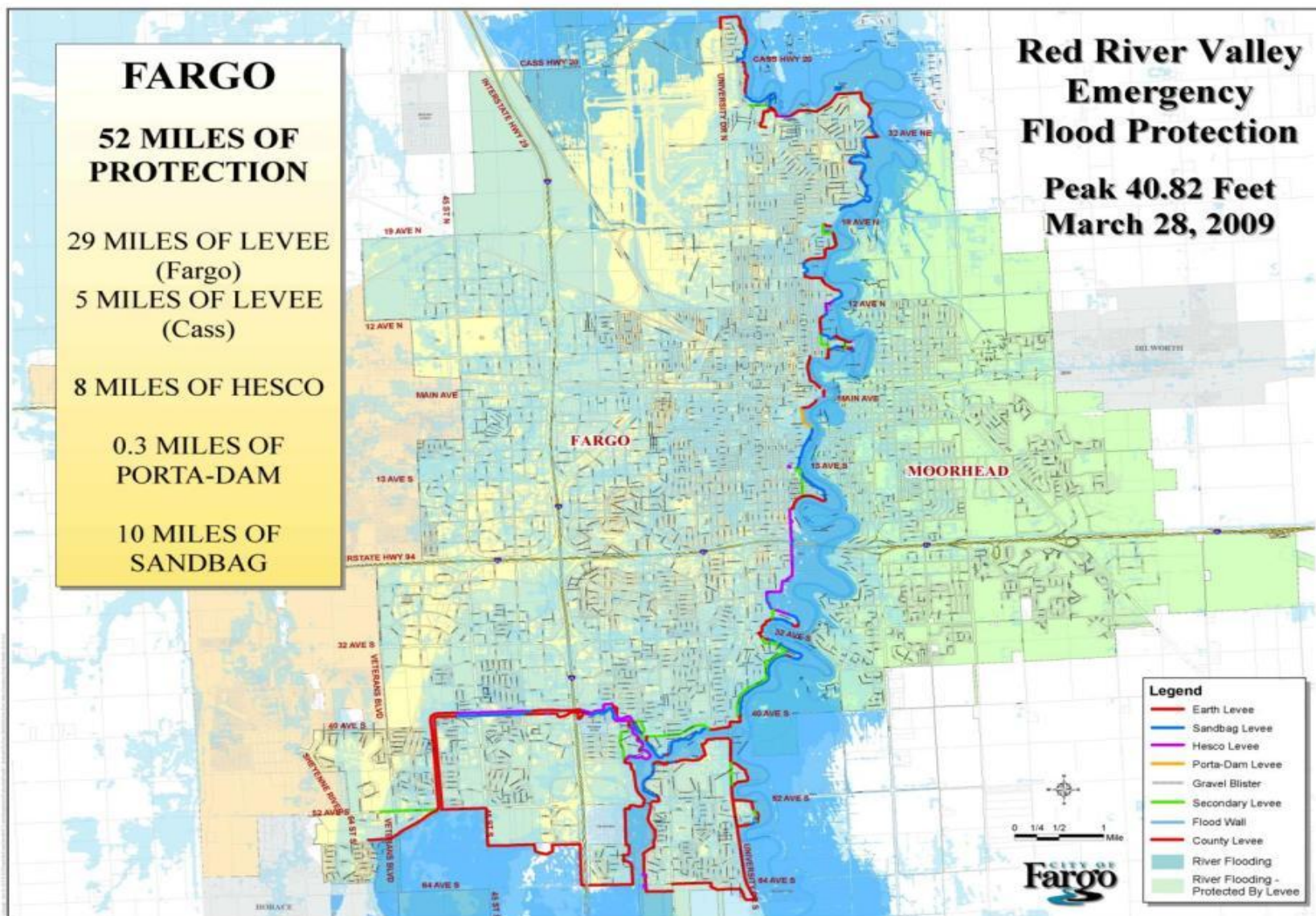
8 MILES OF HESCO

0.3 MILES OF  
PORTA-DAM

10 MILES OF  
SANDBAG

## Red River Valley Emergency Flood Protection

**Peak 40.82 Feet  
March 28, 2009**



**BUILDING STRONG®**



# Completed Features Since 2009

- **Over 16 miles constructed**
  - 15 miles of earth levee
  - 1 mile of floodwall
  - \*47 miles of emergency levees constructed by the City in 2009
- **Project Cost ≈ \$82 million**
- **Reduces required sandbags by approximately 4 million**
- **173 Property acquisitions completed**
- **Required over 80 Private Property Easements**
- **45% of the Comprehensive Plan Completed**







# Ongoing Projects

- **Combination of Projects under Design or Construction**
  - 6 Diversion Authority Led
  - 6 City of Fargo Led
- **Over 3.5 miles in progress**
- **Project Cost  $\approx$  \$100 million**
  - **Construction Cost  $\approx$  \$67 million**
- **55% of the Comprehensive Plan completed once these projects are done**





# **RRN Completed/scheduled Projects Since 2009**

- **Breckenridge, MN – USACE, completed 2015**
- **Wahpeton, ND – USACE, completed 2014**
- **Georgetown, MN- completed 2012**
- **Oakport, MN - completed 2011**
- **Oslo, MN - completed**
- **Crookston, MN – scheduled completion 2015**
- **Roseau, MN – scheduled completion 2015**
- **Lisbon, ND – ongoing**
- **Valley City, ND – Approved 2015**





# Souris River Flooding History

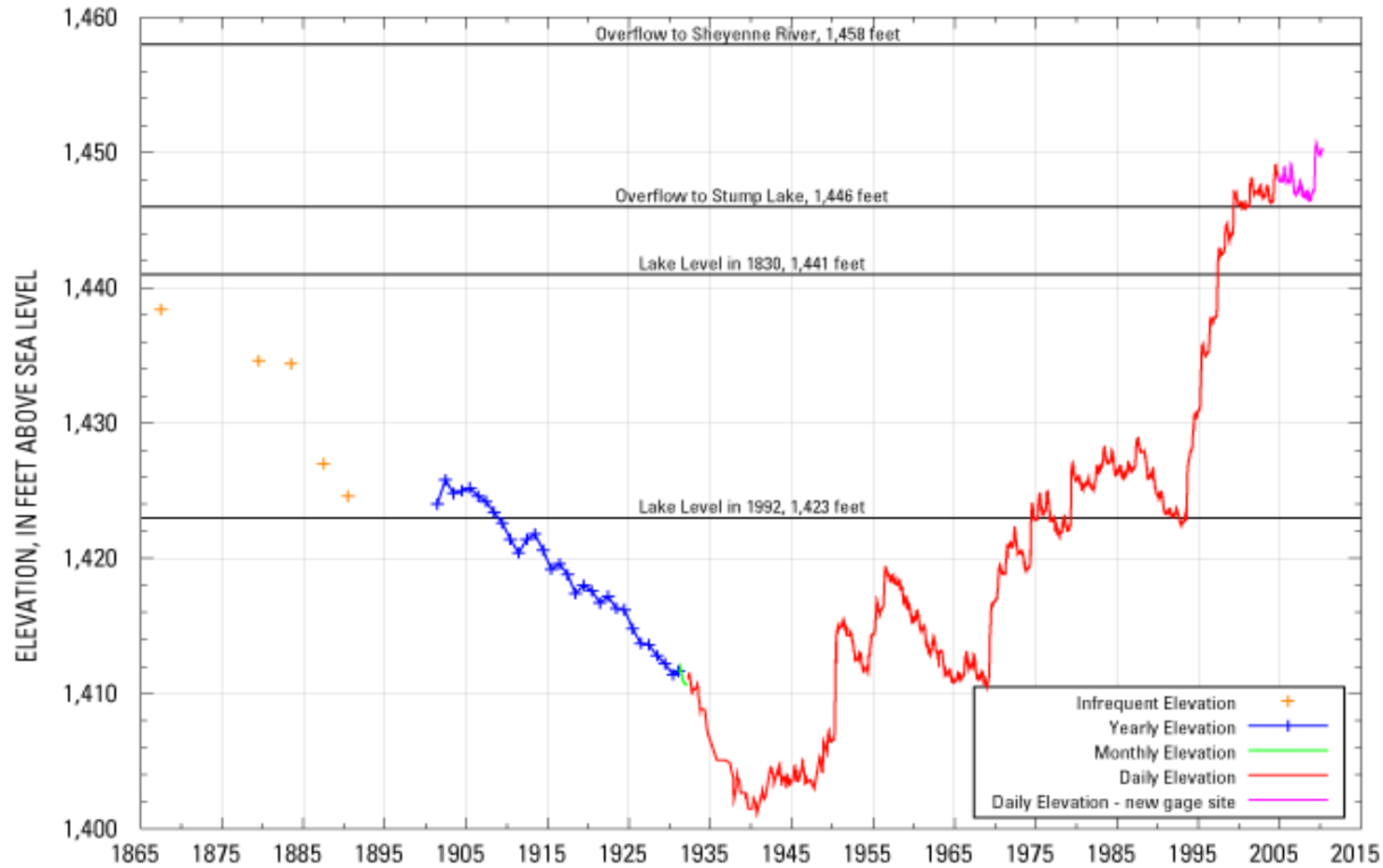
- **Souris River Flood Stage = 14 feet on the Minot 4NW gage**
  - Exceeded only 11 times in the past 50 years
  - Exceeded 8 times 1969-1982
  - 1979 – Minot Project completed
  - 2009 – First time Flood Stage reached since 1982
  - 2011 – Estimated 27,000 cfs and 24.37 feet stage
  - 2013 – 17.07 feet with technical assistance
- 1881 is the flood of record - Stage of 26.00 feet
- 2011 is the modern day record
- Catastrophic damages have been prevented by emergency measures throughout the basin







# Devils Lake Historic Elevation





# Devils Lake Flooding History

- **1980's – Initial Section 205 Project to 1446.2 feet**
- **Fall 1996 - First Emergency Contract Awarded to raise to 1449.2 Feet**
- **Scheduled raise to 1451.2 feet in 1997 – lake rose 5 feet**
- **1997-2000 – Incremental embankment raises to 1458.2 feet with base wide enough for 1461.2 feet**
- **1999 – Lake reached 1446.5 feet and began overflow to Stump Lake**
- **2004/2005- Embankment raises initiated to 1461.2 when lake reached 1449.2 feet**
- **27 Jun 2011 – Record stage of 1454.3 feet**
- **1992-2011 Lake rose 31.3 feet**
- **Tolna Coulee Overflow Completed July 2012**
- **November 2014 - Construction Substantially complete**
- **14 Jun 2015 – Stage of 1451.79**





# Questions?

